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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,174	12/01/2003	Gang Chen	Chen 2-3-1-2-2-	9381
20582	7590	06/22/2005		EXAMINER
JONES DAY				KIANNI, KAVEH C
51 Louisiana Avenue, N.W.			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20001-2113			2883	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/724,174	CHEN ET AL.	
	Examiner Kianni C. Kaveh	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 01 December 2003.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) Claim(s) 9-14 is/are allowed.
- 6) Claim(s) 1 and 6 is/are rejected.
- 7) Claim(s) 2-5,7 and 8 is/are objected to.
- 8) Claim(s) 15-20 are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 December 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-14, drawn to an optical waveguide having a plurality of quantum dots distributed within the polymer matrix, classified in class 385, subclass 141.
- II. Claims 15-20, drawn to a method of preparing an optical waveguide including the step of initiating polymerization of the polymerizable resin, classified in class 385, subclass 143.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the optical waveguide can be made from glass rather than the chemical process used by the process of group II; also the process of group II can be used to make polymer sheets or tubes for medical use rather than an optical waveguide.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Stein on 6/22/05 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-14. Affirmation of

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this election must be made by applicant in replying to this Office action. Claims 15-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Reason for Allowing Claims 9-14***

Claims 9-14 are allowed for the following reasons:

Claim 9 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious an optical core comprising a polymer matrix comprising polymer chains having a plurality of carbon-fluorine bonds in combination with the rest of the limitations of the base claim. Claims 10-14 depend on claim 9 and therefore they are also allowed.

#### ***Allowable Subject Matter***

Claims 2-5 and 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claim 2 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the quantum dots comprise at least one organic cap compound comprising at least one aromatic group in combination with the rest of the limitations of the base claim.

Claim 3 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the polymer matrix comprises a perfluorocyclobutane polymer in combination with the rest of the limitations of the base claim.

Claim 4 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein each polymer chain comprises at least 10 repeat units and (b) is cross linked at least twice to at least one of the other polymer chains in combination with the rest of the limitations of the base claim.

Claim 5 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the polymer chains comprise aromatic groups in combination with the rest of the limitations of the base claim.

Claim 7 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the polymer matrix comprises a number  $N^A$  aliphatic carbon-hydrogen bonds and a number  $N^T$  total bonds, the ratio  $N^A / N^T$  being less than about 0.3 in combination with the rest of the limitations of the base claim.

Claim 8 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein an optical waveguide comprising the composition

of matter of the base claim in combination with the rest of the limitations of the base claim.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *Patentability shall not be negatived by the manner in which the invention was made.*

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbera-Guillem (US 20040203170) .

Regarding claim 1, Barbera-Guillem teaches a composition of matter (shown in at least fig. 1), comprising: a polymer matrix comprising polymer chains (see parag. 0014-0015, and 0017) having carbon-fluorine/fluoro-carbon (see parag. 0035); and a

plurality of quantum dots distributed within the polymer matrix (see at least 0014 and 0016; also parag. 0020, 0027).

However, Barbera-Guillem does not specifically teach wherein the above carbon-fluorine having a plurality of bonds. Nevertheless, Barbera-Guillem states that the polymer matrix/carrier has a plurality of molecules constituting the carbon-fluorine (see parag. 0035, and see fig. 1, items bonds and/or chains). It is obvious/well known to those of ordinary skill in the art that a polymeric matrix containing a material having chained/bonded molecules as such shown in fig. 1, has a plurality of bonds.

Regarding claim 6, Barbera-Guillem further teaches wherein the quantum dots comprise at least one organic cap compound *and* neither the quantum dots nor the cap compounds of the quantum dots are covalently bound to the polymer matrix (see parag. 0027).

#### ***Citation of Relevant Prior Art***

Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Kumacheva et al. 20030136946

Karin et al. 20050013818

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9306 (for formal communications intended for entry)

**or:**

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



K. Cyrus Kianni  
Patent Examiner (*Pr. maw*)  
Group Art Unit 2883

June 16, 2005